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ABSTRACT

This lesson plan is designed for use in a 50-minute class to teach practical nursing students to measure blood pressure. The lesson is part of a course on practical nursing. The lesson plan contains references, a list of equipment needed, objectives, and the presentation. The presentation consists of an outline of instruction coordinated with methods of instruction, audiovisual aids, and the amount of time to be spent on each element. Transparency masters and student handouts are included. Topics covered in the lesson are the following: defining blood pressure, identifying factors that may influence blood pressure, using the equipment needed for taking blood pressures, and taking blood pressures. (KC)

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LESSON PLAN

LESSON PLAN NO. 14	NAME: Kapiolani Community College Health Services Education Division	PAGE 1 OF 23 PAGES

COURSE OF INSTRUCTION AND COURSE NUMBER:	TOTAL HOURS:	LESSON TITLE:
Practical Nursing Program Nursing 120	128	Measuring Blood Pressure- A Demonstration for Practical Nurses

DAY AND DATE OF INSTRUCTION:	HOURS	PLACE:
Thursday, October 31, 1985	7:50p-8:40p	Kapiolani Community College Diamond Head Campus-Kauila Bldg Room 205

NO. OF STUDENTS:	REHEARSAL:	INSTRUCTOR AND ASSISTANTS:	STUDENT MATERIAL AND DRESS:
14	October 27, 29, 30 1985	Instructor: Patricia Metzger Assistant: Barbara Parker	Dress: Blouse or shirt with loose sleeves

REFERENCES:

Fundamentals of Nursing. Wolff, LuVerne RN, MA. JB Lippincott, Philadelphia. Pg 337-343.

Basic Nursing. Rosdahl, Caroline B, RN, MA. JB Lippincott, Philadelphia. Pg 209-211.

Fundamentals of Nursing. Diekelman, Nancy. McGraw-Hill Book Company, New York. Pg 386-389.

EQUIPMENT AND AUDIO-VISUAL AIDS:

7 Aneroid Sphygmomanometers
1 Mercury Sphygmomanometer
7 Stethoscopes
1 Teaching Stethoscope
Alcohol Swabs
Overhead Projector
Screen
Transparency Pointer
Pointer
Poster of Vascular System
Handouts 1-3
Transparencies 1-7

OBJECTIVES:

See Attachment #1

SPECIAL REMARKS:

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PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
I. Introduction As you know, the blood pressure gives significant information about changes that may be going on with a patient. Measuring blood pressure is important especially for: 1. patients who have abnormally high or low readings 2. post-operative patients after anesthesia 3. patients who have sustained serious injury As an Lpn, you will be responsible for taking the blood pressure and the orders that are given by the doctor in regards to activity, medication and tests will be based on the results that you obtain. At the end of this class, you will be able to define blood pressure and terms related to blood pressure, identify some major factors which influence the blood pressure and be aware of the normal systolic and diastolic ranges for adults. You will also be able to assemble the necessary equipment and demonstrate the procedure for taking a blood pressure. I'm going to discuss blood pressure, show you how to	3 min	

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
obtain a blood pressure and then we'll practice taking blood pressures on each other.		
II. Explanation and Demonstration	14 min	
A. Definition of terms relating to blood pressure		Pass out Handout #1
1. Blood Pressure		Transparency #1
a. force of the blood pushing against the walls of the blood vessels		
b. when you take a patient's blood pressure, you are measuring this force of blood thru the arteries		
c. as the heart forces blood thru the circulation, two things determine the degree of pressure in the arteries		
1) the rate of the heartbeat		
2) the ease with which the blood flows thru the blood vessels		
d. the heart contracts as it pumps blood into the arteries-the most force or pressure on the arterial walls occurs when the heart pushes blood into the large artery leaving the heart-the aorta		
2. Systolic Blood Pressure		Transparency #2
a. point that the pressure in the arteries is the highest-the point when the heart is contracting		
b. first sound you hear when taking a blood pressure		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
3. Diastolic Blood Pressure		Transparency #3
a. pressure in the arteries the lowest		
b. heart relaxed-between contractions		
c. last sound heard when taking a blood pressure		
Blood pressure is expressed as a fraction-top number is the systolic pressure-bottom number is diastolic-pressure is expressed in mm of mercury		
4. Normal Blood Pressure		Transparency #4
a. studies of healthy persons show that BP can fall within a wide range and still be normal		
b. important to know (if possible) what the normal BP for a particular patient is		
c. if there is a rise or fall of 20-30 mm Hg-that is significant even if its well within the generally accepted range of normal		
d. our curriculum states the normal average range for systolic for adults is 100-140mm Hg		
e. normal average range for diastolic for adults is 60-90mm Hg		
5. Hypertension		
a. defined as when a person's BP is higher than the normal range for his age and condition		
b. American Heart Assoc considers SBP over 140 in people 20-40 yrs old as abnormally high and over 160 for people over 40 yrs old		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
c. diastolic pressure over 90 in any age group is considered abnormally high		
d. can be found in following conditions: 1) kidney disease 2) increased intracranial pressure 3) tumors of the adrenals 4) narrowing of the aorta 5) atherosclerosis		
6. Hypotension		
a. abnormally low blood pressure		
b. when the BP is lower than the normal range for patient's age and condition		Example: woman in ER
c. having a consistantly low BP such as 96/60 usually associated with efficient functioning of the heart and blood vessels		
d. can be found in the following conditions: 1) orthostatic hypotension-low BP when rising to an upright position quickly after periods of lying down or sitting 2) shock-due to poor circulatory efficiency and poor output of blood 3) drugs-can cause rapid dilatation of peripheral blood vessels		Example: nipride
QUESTIONS 1) What is systole? Answer: pressure in arteries highest period of heart's contraction		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
2) What is diastole? Answer: pressure in arteries lowest heart relaxing or between contractions		
3) What are the normal BP ranges for adults? Answer: 100-140/60-90		
B. <u>Common Factors Influencing the Blood Pressure</u>		Pass out Handout #2 Transparency #5
1. Age		
a. BP rises with age b. due to loss of elasticity and thickening of blood vessels		
2. Time of day		
a. BP tends to be lowest in the morning on awakening as are the other vital signs b. highest later in the day and early evening		
3. Sex		
a. women tend to have lower BP on the average than do men of the same age		
4. Exercise and Activity		
a. BP rises due to muscular contractions		
5. Emotions and Pain		
a. causes a rise		Example: Maui patient
6. Other factors that can cause a rise in BP		
a. full bladder b. legs crossed		

PRESENTATION

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c. smoking d. caffeine e. cold f. body build-obese usually higher		
C. <u>Equipment for Measuring Blood Pressure</u>	10 min	
1. Sphygmomanometer (BP Apparatus)		Transparency #6
a. manometer		
1) mercury-measures pressure with the use of mercury in a calibrated tube		show actual manometer
2) aneroid-measures without fluid-uses indicator needle		show actual manometer
b. cuff		
1) important to use the right size		
2) common guide-should be 2/3 length upper arm		
3) if too big-BP readings falsely low		
4) if too small-BP readings falsely high		
QUESTION: Can anybody tell me when you might use a thigh cuff?		
ANSWER: Casts both arms, IVs in antecubitals, arm obese		
c. bulb		
d. valve		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
2. Stethoscope		Show stethoscope
a. instrument that carries sounds from the body to the examiner's ears		
b. disk or bell magnifies sounds from the artery		
1) disk picks up high pitched sounds 2) bell picks up low pitched sounds 3) may use either but most use disk		
c. brace prevents tubing from kinking		
d. make sure tubing isn't too long-decreases good sound quality-should be about 20 inches		
e. eartips should curve away from nurse to insure optimal sound quality		
3. Other equipment used for measuring Blood Pressure		
a. dinamapp or criticon		
b. machines in shopping malls		
c. arterial line		
QUESTION: Name one type of manometer?		
ANSWER: Mercury or aneroid		
D. <u>Obtaining the blood pressure-15 steps</u>	5 min	Pass out Handout #3 and state: I will go over the steps, then I'll repeat the steps during a demonstration
1. Assemble equipment		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
a. sphygmomanometer		
b. stethoscope		
2. Prepare patient		
a. explain procedure		
b. position patient		
1) forearm at level of heart		
2) palm up		
3. Wrap cuff around arm		
a. arrow or 2 tubes centered over brachial artery		Transparency #7
b. bottom edge of cuff 1-2 inches from elbow		
4. Locate brachial artery with 2-3 fingers		
5. Close bulb valve		
6. Inflate cuff until pulse disappears-note reading on dial		
7. Deflate cuff		
8. Wait 30 seconds		
9. Put stethoscope in ears		
10. Place disk over brachial artery lightly		
11. Close valve and inflate cuff 30mm over point at which pulse disappeared		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
12. Release valve slowly and note systolic pressure as first 2 consecutive tapping sounds		
13. Note diastolic pressure as last audible sound		
14. Release valve and allow cuff to deflate quickly		
15. Record BP reading		Now I will demonstrate on a mannequin while repeating the steps
	15 min	Students to pair off- preferably one experienced with one inexperienced I will circulate and use teaching stethoscope to test
III. Summary	3 min	
In review, we've found that blood pressure is the force of the blood on the walls of the arteries, whether that force is excessively high as in hypertension or extremely low, as in hypotension. We've discussed the normal and abnormal components of blood pressure and their measurements. The various equipment used for taking blood pressure has been shown and how to take the blood pressure has been demonstrated and practiced.		
It's important to remember that blood pressure is one		

PRESENTATION

OUTLINE OF INSTRUCTION	TIME	METHODS OF INSTRUCTION AND AIDS
of the most important vital signs and your knowledge of the theory and your skill in measuring the blood pressure is critical to a patient's treatment and survival. You will have another lab session in which to practice so that you are able to take 3 consecutive blood pressures correctly.		

OBJECTIVES

At the end of fifty minutes, the student will be able to:

1. Define blood pressure and related terms:

    a) systolic blood pressure
    b) diastolic blood pressure
    c) hypertension
    d) hypotension

2. Identify the "normal" systolic and diastolic ranges for adults

3. Identify four major factors which may influence blood pressure

4. Name and describe the necessary equipment used to take a blood pressure

5. Demonstrate, in class, the procedure for taking a blood pressure

DEFINITION OF TERMS

BLOOD PRESSURE

SYSTOLIC BLOOD PRESSURE (SYSTOLE)

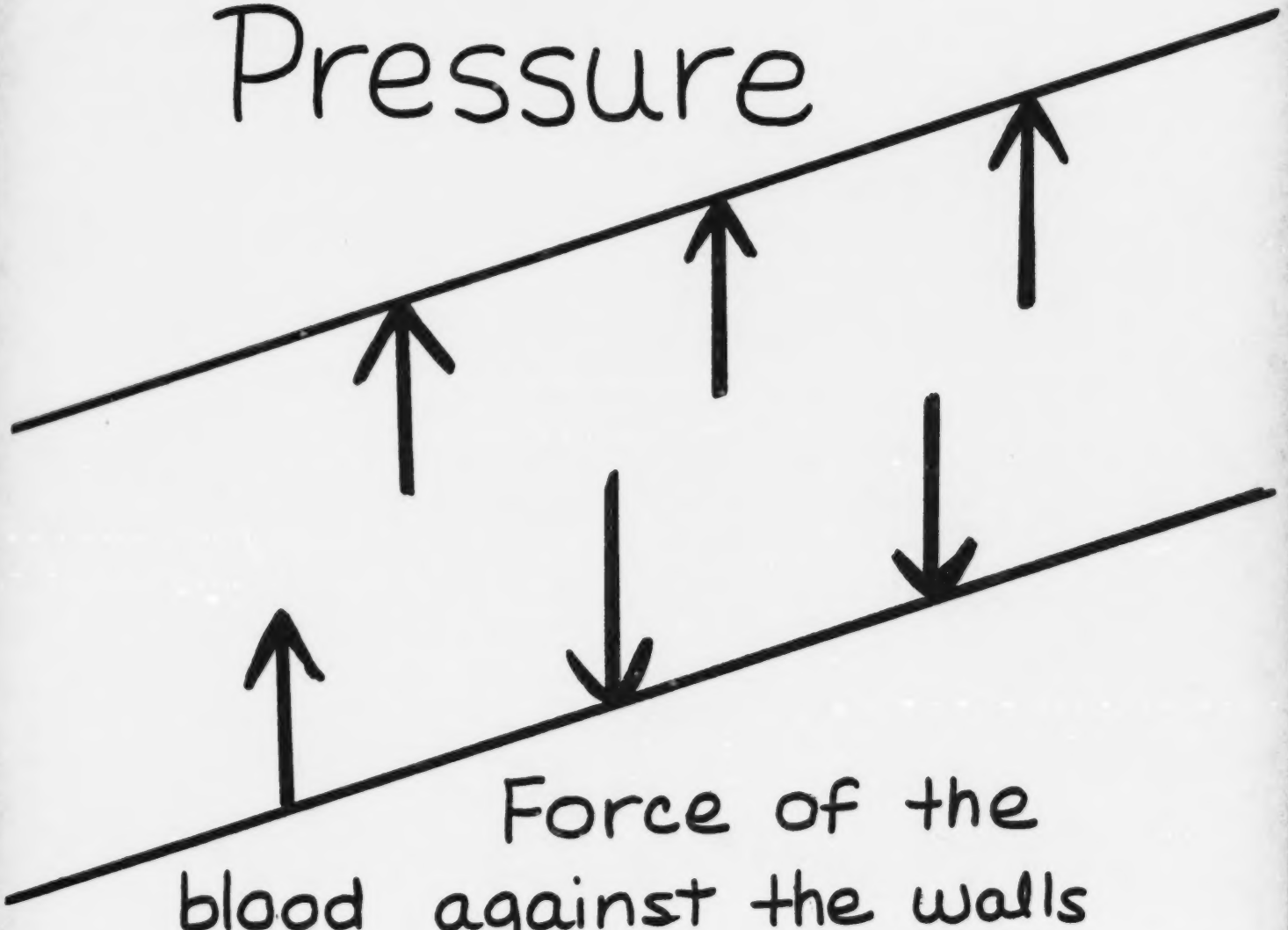
DIASTOLIC BLOOD PRESSURE (DIASTOLE)

"NORMAL" BLOOD PRESSURE

HYPERTENSION

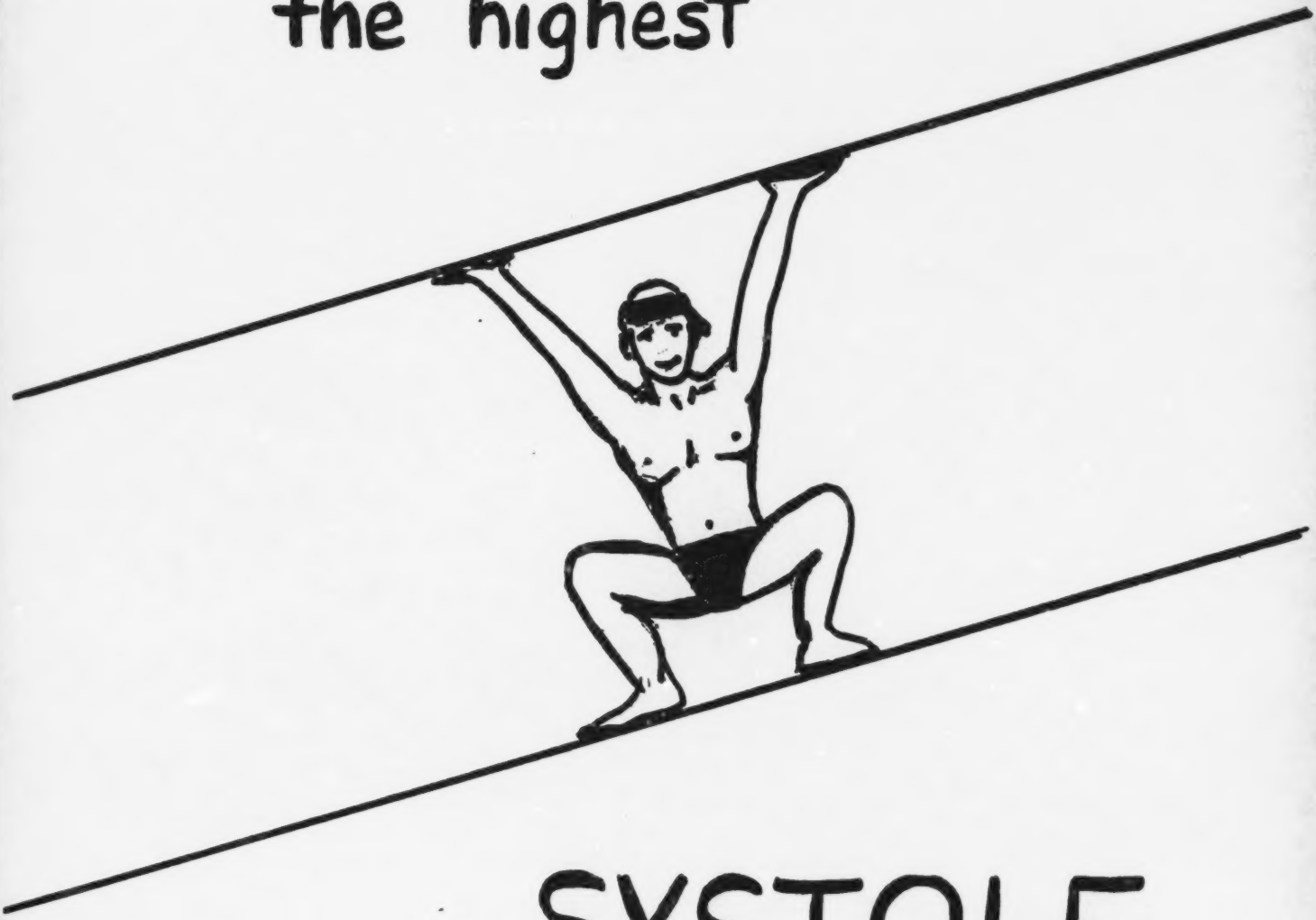
HYPOTENSION

Blood Pressure



Force of the blood against the walls of the blood vessels

heart contracting- pressure in arteries the highest



SYSTOLE

heart relaxed-
pressure in arteries
the lowest

DIASTOLE

NORMAL BLOOD PRESSURE

$\frac{100\text{-}140}{60\text{-}90}$ SYSTOLIC
DIASTOLIC

HYPERTENSION

BP HIGHER THAN THE NORMAL RANGE FOR AGE AND CONDITION

140 SYSTOLIC 20-40 YRS OLD

160 SYSTOLIC 40 YRS OLD

90 DIASTOLIC ANY AGE

HYPOTENSION

BP ABNORMALLY LOW

BP LOWER THAN NORMAL RANGE FOR PATIENT'S AGE AND CONDITION

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COMMON FACTORS INFLUENCING BLOOD PRESSURE

AGE

TIME OF DAY

SEX

EXERCISE & ACTIVITY

EMOTIONS & PAIN

OTHER FACTORS

COMMON FACTORS INFLUENCING BLOOD PRESSURE

AGE

BP RISES WITH AGE

DUE TO LOSS OF ELASTICITY AND THICKENING OF BLOOD VESSELS

TIME OF DAY

BP TENDS TO BE LOWEST IN THE MORNING UPON AWAKENING AS ARE THE OTHER VITAL SIGNS

HIGHEST LATER IN THE DAY AND EARLY EVENING

SEX

WOMEN TEND TO HAVE LOWER BP ON THE AVERAGE THAN DO MEN OF THE SAME AGE

EXERCISE & ACTIVITY

BP RISES DUE TO MUSCULAR CONTRACTIONS

EMOTIONS & PAIN

CAUSES A RISE

OTHER FACTORS

FULL BLADDER	CAFFEINE
LEGS CROSSED	COLD
SMOKING	BODY BUILD-OBESE

SPHYGMO - PULSE

MANO - PRESSURE

METER - MEASURE

PM 10/85

OBTAINING THE BLOOD PRESSURE-15 STEPS

1. ASSEMBLE EQUIPMENT
   - A.
   - B.
   - C.
2. PREPARE PATIENT
   - A.
   - B.
     - 1)
     - 2)
3. WRAP CUFF AROUND ARM
   - A.
   - B.
4. LOCATE BRACHIAL ARTERY
5. CLOSE BULB VALVE
6. INFLATE CUFF UNTIL PULSE DISAPPEARS-NOTE READING ON DIAL
7. DEFLATE CUFF
8. WAIT 30 SECONDS
9. PUT STETHOSCOPE IN EARS

PM 10/85

10. PLACE DISK OVER BRACHIAL ARTERY LIGHTLY

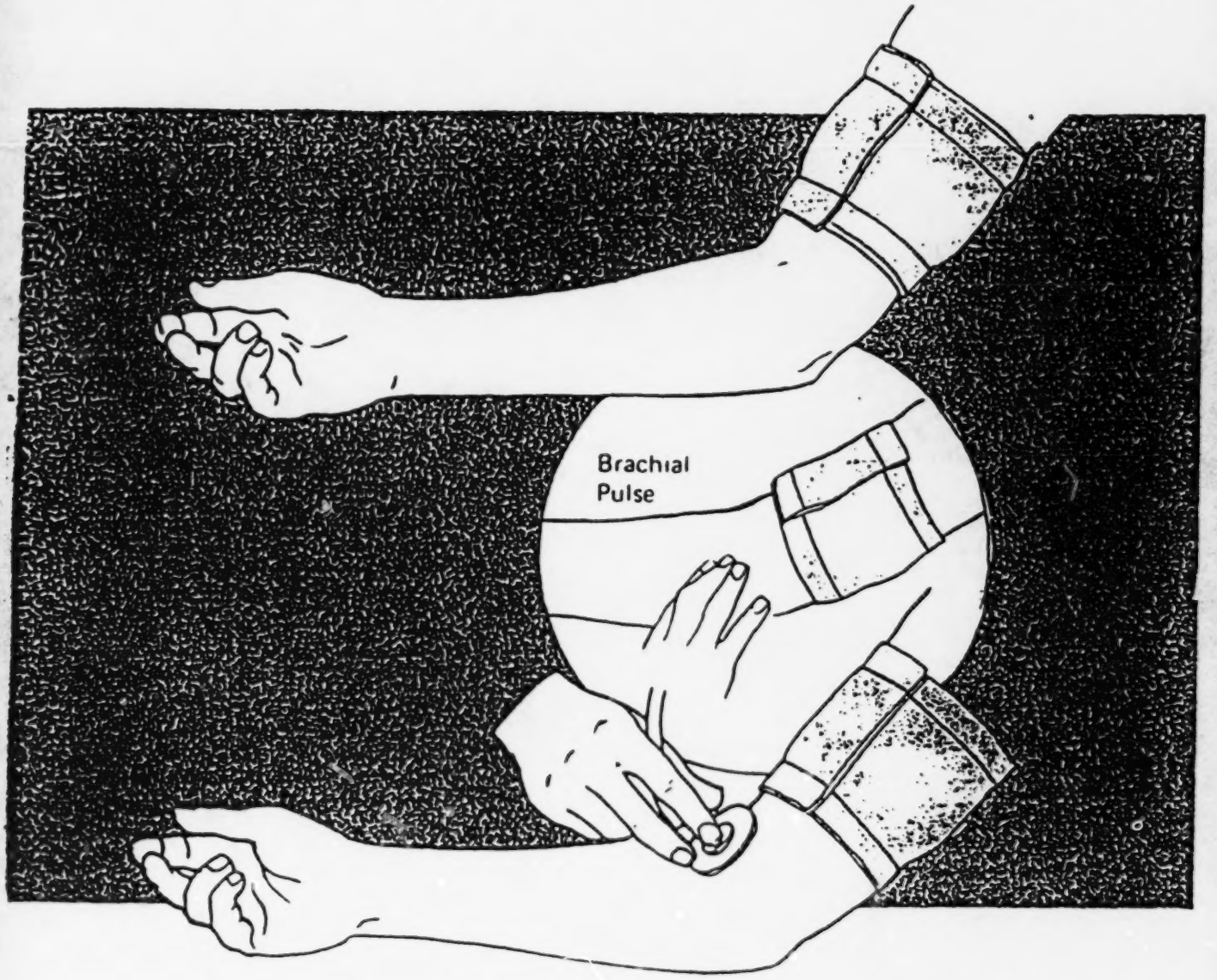
11. CLOSE VALVE AND INFLATE CUFF 30MM OVER POINT AT WHICH PULSE DISAPPEARED

12. RELEASE VALVE SLOWLY AND NOTE SYSTOLIC PRESSURE AS FIRST TWO CONSECUTIVE TAPPING SOUNDS

13. NOTE DIASTOLIC PRESSURE AS LAST AUDIBLE SOUND

14. RELEASE VALVE AND ALLOW CUFF TO DEFLATE QUICKLY

15. RECORD BP READING


Brachial
Pulse